

## AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

### Listing of Claims:

1. (Currently Amended) In a code generation computing system that includes one or more processors ~~capable of executing~~ to execute computer-executable instructions in system memory, a method for the code generation computing system to automatically generate code that tests capabilities of a test computing system to use a message exchange pattern application to engage in message transactions following a message exchange pattern, the method comprising the following:

an act of accessing a message exchange pattern definition that defines a plurality of states, the message exchange pattern definition further having for each of the plurality of states, an indication of one or more valid messages that conform to the message exchange pattern for that state, an indication of which computing system may transmit each valid message given the state, and a state transition indication for at least some of the valid messages identifying one of the plurality of states to transition to should the valid message occur;

~~for each~~ an act of accessing a state in which the message exchange pattern definition allows a valid transmission message to be transmitted by the test computing system for the accessed state;

based on the accessed state, automatically performing the acts of:

~~an act of~~ generating code that at least simulates transmission of the valid transmission message; and

transitioning ~~that transitions~~ to other code that represents the state to transition to ~~should the valid transmission message be transmitted in response to transmission of the valid transmission message;~~ and

an act of accessing at least one other ~~for each~~ state in which the message exchange pattern definition allows a valid receipt message to be received; and

based on the at least one other accessed state, automatically performing the acts of:

~~an act of~~ generating code that simulates the receipt of the valid receipt message; and

transitioning ~~that transitions~~ to other code that represents the state to transition to ~~should the valid receipt message be received~~ in response to reception of the valid message.

2. (Original) A method in accordance with Claim 1, wherein the message exchange pattern definition indicates that when in a particular state, any one of a plurality of valid transmission messages may be transmitted.

3. (Currently Amended) A method in accordance with Claim 2, wherein the message exchange pattern definition indicates for each of the plurality of valid transmission messages for the particular state, a percentage chance that each of the plurality of valid transmission messages will be transmitted given the particular state, wherein the method further comprises automatically generating code ~~for~~ to at least ~~simulating~~ simulate each of the plurality of valid transmission messages and performing appropriate state transitions given the transmission.

4. (Currently Amended) A method in accordance with Claim 3, further comprising the following:

an act of generating code that generates a pseudo-random value and selects one of the plurality of valid transmission messages ~~for transmission~~ to transmit based on the pseudo-random value and on the percentage chance.

5. (Original) A method in accordance with Claim 1, further comprising the following for at least one state:

an act of generating code that at least simulates transmission of an invalid transmission message.

6. (Currently Amended) A method in accordance with Claim 5, wherein there is also indicated a percentage chance that the invalid transmission messages will be transmitted given

the particular state, wherein the method further comprises an act of generating code that generates a pseudo-random value and selects one of the invalid transmission message ~~for transmission~~ to transmit based on the pseudo-random value and on the percentage chance.

7. (Original) A method in accordance with Claim 1, wherein the message exchange pattern definition indicates that when in a particular state, any one of a plurality of valid receipt messages may be received.

8. (Currently Amended) A method in accordance with Claim 7, wherein the message exchange pattern definition indicates for each of the plurality of valid receipt messages for the particular state, a percentage chance that each of the plurality of valid receipt messages will be received given the particular state, wherein the method further comprises automatically generating code ~~for simulating~~ to simulate each of the plurality of valid receipt messages and performing appropriate state transitions given the transmission.

9. (Currently Amended) A method in accordance with Claim 8, further comprising the following:

an act of generating code that generates a pseudo-random value and selects one of the plurality of valid receipt messages ~~for~~ to function as a simulated receipt based on the pseudo-random value and on the percentage chance.

10. (Original) A method in accordance with Claim 1, further comprising the following for at least one state:

an act of generating code that simulates receipt of an invalid transmission message.

11. (Currently Amended) A method in accordance with Claim 10, wherein there is also indicated a percentage chance that the invalid receipt message will be received given the particular state, wherein the method further comprises an act of generating code that generates a pseudo-random value and selects one of the invalid received message ~~for~~ to function as a simulated receipt based on the pseudo-random value and on the percentage chance.

12. (Original) A method in accordance with Claim 1, wherein the message exchange pattern definition is defined using the Web Services Description Language (WSDL) standard.

13. (Original) A method in accordance with Claim 1, wherein the message exchange pattern definition further defines timing policies to be imposed when in a particular state.

14. (Currently Amended) A computer program product for use in a code generation computing system that includes one or more processors ~~capable of executing~~ to execute computer-executable instructions in system memory, the computer program product for performing a method for the code generation computing system to automatically generate code that tests capabilities of a test computing system to use a message exchange pattern application to engage in message transactions following a message exchange pattern, the computer program product comprising one of more recordable-type computer-readable media that, when executed by one or more processors of the code generation computing system, causes the code generation computing system to perform the method, the method comprising the following:

an act of accessing a message exchange pattern definition that defines a plurality of states, the message exchange pattern definition further having for each of the plurality of states, an indication of one or more valid messages that conform to the message exchange pattern for that state, an indication of which computing system may transmit each valid message given the state, and a state transition indication for at least some of the valid messages identifying one of the plurality of states to transition to should the valid message occur;

~~for each~~ an act of accessing a state in which the message exchange pattern definition allows a valid transmission message to be transmitted by the test computing system for the accessed state;

based on the accessed state, automatically performing the acts of:

~~an act of~~ generating code that at least simulates transmission of the valid transmission message;; and

transitioning that transitions to other code that represents the state to transition to ~~should the valid transmission message be transmitted in~~ response to transmission of the valid transmission message; and

an act of accessing at least one other ~~for each~~ state in which the message exchange pattern definition allows a valid receipt message to be received;; and

based on the at least one other accessed state, automatically performing the acts of:

~~an act of~~ generating code that simulates the receipt of the valid receipt message;; and

transitioning ~~that transitions~~ to other code that represents the state to transition to ~~should the valid receipt message be received~~ in response to reception of the valid message.

15. (Original) A computer program product in accordance with Claim 14, wherein the message exchange pattern definition indicates that when in a particular state, any one of a plurality of valid transmission messages may be transmitted.

16. (Currently Amended) A computer program product in accordance with Claim 15, wherein the message exchange pattern definition indicates for each of the plurality of valid transmission messages for the particular state, a percentage chance that each of the plurality of valid transmission messages will be transmitted given the particular state, wherein the method further comprises automatically generating code for to at least ~~simulating~~ simulate each of the plurality of valid transmission messages and performing appropriate state transitions given the transmission.

17. (Currently Amended) A computer program product in accordance with Claim 16, further comprising the following:

an act of generating code that generates a pseudo-random value and selects one of the plurality of valid transmission messages ~~for transmission~~ to transmit based on the pseudo-random value and on the percentage chance.

18. (Original) A computer program product in accordance with Claim 14, further comprising the following for at least one state:

an act of generating code that at least simulates transmission of an invalid transmission message.

19. (Currently Amended) A computer program product in accordance with Claim 18, wherein there is also indicated a percentage chance that the invalid transmission messages will be transmitted given the particular state, wherein the method further comprises an act of generating code that generates a pseudo-random value and selects one of the invalid transmission

message ~~for transmission~~ to transmit based on the pseudo-random value and on the percentage chance.

20. (Original) A computer program product in accordance with Claim 14, wherein the message exchange pattern definition indicates that when in a particular state, any one of a plurality of valid receipt messages may be received.

21. (Currently Amended) A computer program product in accordance with Claim 20, wherein the message exchange pattern definition indicates for each of the plurality of valid receipt messages for the particular state, a percentage chance that each of the plurality of valid receipt messages will be received given the particular state, wherein the method further comprises automatically generating code ~~for simulating~~ to simulate each of the plurality of valid receipt messages and performing appropriate state transitions given the transmission.

22. (Currently Amended) A computer program product in accordance with Claim 21, further comprising the following:

an act of generating code that generates a pseudo-random value and selects one of the plurality of valid receipt messages ~~for~~ to function as a simulated receipt based on the pseudo-random value and on the percentage chance.

23. (Original) A computer program product in accordance with Claim 14, further comprising the following for at least one state:

an act of generating code that simulates receipt of an invalid transmission message.

24. (Currently Amended) A computer program product in accordance with Claim 23, wherein there is also indicated a percentage chance that the invalid receipt message will be received given the particular state, wherein the method further comprises an act of generating code that generates a pseudo-random value and selects one of the invalid received message ~~for~~ to function as a simulated receipt based on the pseudo-random value and on the percentage chance.

25. (Original) A computer program product in accordance with Claim 14, wherein the message exchange pattern definition is defined using the Web Services Description Language (WSDL) standard.

26. (Original) A computer program product in accordance with Claim 14, wherein the message exchange pattern definition further defines timing policies to be imposed when in a particular state.

27. (Original) A computer program product in accordance with Claim 14, wherein the one or more computer-readable media are physical media.

27. (Cancelled).

28. (Original) A computer program product in accordance with Claim 27, wherein the one or more computer-readable media includes system memory.

29. (Original) A computer program product in accordance with Claim 27, wherein the one or more computer-readable media includes persistent memory.

30. (Original) A computer program product in accordance with Claim 29, wherein the persistent memory is a magnetic disk.



31. (Currently Amended) In a code generation computing system that includes one or more processors ~~capable of executing~~ to execute computer-executable instructions in system memory, a method for the code generation computing system to automatically generate code that tests capabilities of a test computing system to use a message exchange pattern application to engage in message transactions following a message exchange pattern, the method comprising the following:

an act of accessing a message exchange pattern definition that defines a plurality of states, the message exchange pattern definition further having for each of the plurality of states, an indication of one or more valid messages that conform to the message exchange pattern for that state, an indication of which computing system may transmit each valid message given the state, and a state transition indication for at least some of the valid messages identifying one of the plurality of states to transition to should the valid message occur; and

a step ~~for to~~ automatically generating-generate message exchange pattern simulation code using the message exchange pattern definition that at least simulates transmission of the valid transmission message; and

transitioning to other code that represents the state to transition to in response to transmission of the valid transmission message.

32. (Currently Amended) A method in accordance with Claim 31, wherein the step ~~for to~~ automatically generating-generate message exchange pattern simulation code using the message exchange pattern definition comprises the following:

for each state in which the message exchange pattern definition allows a valid transmission message to be transmitted by the test computing system, an act of generating code that at least simulates transmission of the valid transmission message, and that transitions to other code that represents the state to transition to should the valid transmission message be transmitted; and

for each state in which the message exchange pattern definition allows a valid receipt message to be received, an act of generating code that simulates the receipt of the valid receipt message, and that transitions to other code that represents the state to transition to should the valid receipt message be received.